Galactic Coordinates for the General Catalogue of Radial Velocities

The General Catalogue of Radial Velocities prepared at the Mt. Wilson Observatory by the late Ralph E. Wilson has in the twelve years since its publication demonstrated its worth in several branches of stellar astronomy; it provides a readily available listing of the brighter stars with spectral, kinematical and positional data. Revisions and extensions of this catalogue were discussed in detail at the XIIth General Assembly of the I. A. U. at Hamburg.

For problems of galactic structure, coordinates in the new (l^{II}, b^{II}) system adopted in 1960 are indispensable. The present work was undertaken to make such data available to all astronomers.

The basic material for the present work was a preliminary tape prepared at the NASA Goddard Space Flight Center from an unverified punched card version of the catalogue compiled at the Yale University and the U. S. Naval Observatories. In preparing this tape J. M. Burley computed galactic coordinates (l^{II} and b^{II}) for each star in the GCRV using an IBM 7094. From this tape a new set of 15,106 cards was obtained through the facilities of IBM Italia in Rome. Using an IBM 1620, Bertiau checked the punched cards, and consequently the original tape, for different errors (sequencing, inversions, etc.); the galactic coordinates were also recalculated with

eight significant figures. In cases where a discrepancy was found between the two sets of coordinates computed for the same star, twelve figures were used; in nine cases it was found that a precision of twelve decimals was necessary to decide about the rounding off of the second decimal. Thus the galactic coordinates, l^{II} and b^{II}, are presented with a precision of $0^{\circ}.01$ in the catalogue.

Discrepancies in α and δ between the General Catalogue and the tape were detected by the laborious but profitable method of comparing the sums of α and δ for stars listed on each page of the GCRV with the corresponding sums obtained from the punched cards. The exacting task of computing the sums with a desk calculator was carried out by Theo Fonteyn S.J. at Louvain University. The small number of errors detected enhances the confidence placed in the accuracy of the present catalogue.

Dr. William Buscombe of the Mount Stromlo Observatory kindly communicated to us a list of errors detected in the GCRV. Four of these errors concern positional data and hence affect the values of l^{II} and b^{II}. These errors are the following:

GCRV No.	δ as given in GCRV	δ correct
5574	-7° 49'	$+7^{\circ}$ 49'
7329	-9° 45'	-5° 45'
8561	$+34^{\circ}$ 59'	-34° 59'
8712	-65° 50'	-63° 50'

In the present catalogue these four stars are marked with an asterisk (*) immediately after the GCRV Number.

The arrangement of the present catalogue is the following: GCRV No., equatorial coordinates (α and δ for 1950), and galactic coordinates (l^{II} and b^{II}).

The authors wish to express their thanks to Dr. Raynor L. Duncombe of the U. S. Naval Observatory for his advice and encouragement to publish these data; to the staffs of the Yale University and the U. S. Naval Observatories who prepared the punched cards from which the tape and subsequent cards were obtained; to Dr. William Buscombe, Theo Fonteyn S.J. and the staff members of the Vatican Observatory and the Goddard Space Flight Center for their help and suggestions; and to IBM Italia and the Tipografia Vaticana for their care with the printing.

Sample page from 12-page catalogue

N	R.A.	DEC.	L.	B.	N	R.A.	DEC.	L.	B.
[redacted]	0 10.2	+72 15	120.01	+ 9.87	151	0 14.8	+08 36	108.84	-53.06
[redacted]	10.2	+37 25	114.54	-24.55	152	14.9	+50 01	117.41	-12.21
103	10.5	-22 45	58.97	-80.12	153	15.1	+51 09	117.59	-11.09
104	10.6	+16 39	109.95	-44.98	154	15.2	+58 47	118.62	- 3.53
105	10.7	+14 54	109.45	-46.69	155	15.2	+01 25	105.88	-60.06
106	10.7	+63 11	118.70	+ 0.90	156	15.2	+16 03	111.32	-45.78
107	10.8	+26 43	112.56	-35.11	157	15.3	+19 57	112.33	-41.95
108	10.8	+26 43	112.56	-35.11	158	15.4	+12 30	110.37	-49.28
109	10.9	+40 46	115.27	-21.26	159	15.4	-13 44	91.49	-74.25
110	11.2	+75 45	120.62	+13.32	160	15.5	+76 00	120.92	+13.53
111	11.3	+59 43	118.26	- 2.54	161	15.5	+43 44	116.63	-18.45
112	11.4	+44 14	115.94	-17.85	162	15.5	+43 44	116.63	-18.45
113	11.4	-17 49	78.93	-77.08	163	15.6	+61 27	119.02	- 0.89
114	11.4	+32 56	113.98	-29.01	164	15.7	+36 30	115.58	-25.62
115	11.5	+75 45	120.64	+13.32	165	15.7	+20 06	114.51	-31.95
116	11.5	-04 11	100.28	-65.12	166	15.7	+10 56	109.99	-50.83
117	11.6	+25 59	112.62	-35.86	167	15.8	+61 56	119.11	- 0.42
118	11.6	+35 08	114.44	-26.85	168	15.9	+25 52	113.77	-36.14
119	11.7	+43 34	115.89	-18.52	169	15.9	+25 52	113.77	-36.14
120	11.9	-08 04	96.66	-68.77	170	16.0	+31 14	114.78	-30.84
121	11.9	-14 42	86.93	-74.65	171	16.1	+43 31	116.71	-18.68
122	12.0	+19 56	111.30	-41.83	172	16.1	+22 36	113.16	-39.37
123	12.1	-19 13	75.09	-78.23	173	16.1	+15 43	111.53	-46.15
124	12.1	-15 05	86.29	-74.99	174	16.1	+15 43	111.53	-46.15
125	12.3	-14 27	87.74	-74.49	175	16.6	+58 52	118.81	- 3.47
126	12.3	+22 00	111.90	-39.81	176	16.8	+26 11	114.08	-35.86
127	12.4	+08 33	107.86	-52.97	177	16.9	-09 06	99.00	-70.19
128	12.4	+08 32	107.86	-52.99	178	17.1	+40 27	116.47	-21.75
129	12.5	+58 09	118.19	- 4.11	179	17.3	+44 26	117.06	-17.80
130	12.5	+31 15	113.93	-30.71	180	17.3	+61 48	119.26	- 0.57
131	12.6	+27 00	113.11	-34.90	181	17.3	+42 36	116.31	-19.62
132	12.8	-32 19	358.74	-80.74	182	17.3	+15 58	112.01	-45.96
133	13.4	+76 40	120.89	+14.21	183	17.4	+37 57	116.17	-24.23
134	13.5	+46 44	116.70	-15.43	184	17.4	+48 35	117.63	-13.69
135	13.7	+43 19	116.23	-18.82	185	17.5	-65 10	308.35	-51.91
136	13.8	-14 45	88.31	-74.93	186	17.8	+30 40	115.13	-31.46
137	14.0	+15 33	110.77	-46.22	187	17.8	+30 42	115.14	-31.42
138	14.0	+07 58	108.28	-53.63	188	17.9	+10 38	110.74	-51.23
139	14.0	+54 23	117.87	- 7.87	189	18.0	+61 36	119.32	- 0.78
140	14.1	+01 34	105.43	-59.84	190	18.0	+07 55	109.90	-53.89
141	14.1	+36 21	115.21	-25.72	191	18.1	+26 13	114.44	-35.87
142	14.1	+36 12	115.18	-25.87	192	18.1	+32 38	115.53	-29.52
143	14.2	+13 38	110.28	-48.11	193	18.3	+32 42	115.58	-29.46
144	14.2	+09 58	109.09	-51.69	194	18.3	+10 42	110.92	-51.18
145	14.3	+61 15	118.84	- 1.07	195	18.3	-69 54	306.88	-47.27
146	14.4	+40 40	115.96	-21.46	196	18.4	+12 30	111.48	-49.42
147	14.5	+38 24	115.63	-23.71	197	18.5	+37 42	116.37	-24.51
148	14.8	+16 14	111.23	-45.59	198	19.0	-29 15	15.59	-83.15
149	14.8	+16 14	111.23	-45.59	199	19.1	-16 29	89.10	-77.08
150	14.8	+08 36	108	-53.06	200	19.2	+20 20	77.48	-80.19

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